USRDS: Home vs. In-Center Hemodialysis vs. Peritoneal Dialysis

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Comparisons of PD & HD outcomes
- Trends in PD, HD and Home HD as a therapy in the US
- Consolidation of PD therapy in the US
- Care delivered to the PD vs HD populations
- Anemia correction and overshooting
- Cardiovascular risk factor monitoring
- Mortality in the first year of therapy
- Mortality in subsequent years: Incident vs prevalent populations

USRDS 2008 ADR
California NKF 2009

Incident patient counts (USRDS), by first modality
Figure 4.1

Prevalent patient counts (USRDS), by modality
Figure 4.2

Geographic variations in unadjusted incident rates (per million population), by first modality & HSA: HD, ’95-’96 vs ’05-’06
Figure 4.5 (Volume 2)

Geographic variations in unadjusted incident rates (per million population), by first modality & HSA: PD, ’95-’96 vs ’05-’06
Figure 4.5 (continued; Volume 2)
The utilization of HD therapy has increased over the last decade compared to PD. PD as a therapy peaked in the mid-1990s at about 9,400 incident cases and 30,000 prevalent cases. In 2006 the incident PD population was 6,700 and prevalent was 26,000. The incident PD population insurance coverage is slightly different than the HD population in that there is more private coverage and EGHPs. These payers may reflect the younger population and/or different payment structures to providers. The incident and prevalent population’s treatment has consolidated into less areas within the country.

Defining the home hemodialysis population is more challenging since there are fewer codes to track patients than with the other therapies. Incident registration forms are less specific for home hemodialysis. It is harder to define home hemodialysis training than in PD. The revenue codes that the USRDS uses to track the modality utilization over time are less specific for home hemodialysis compared to in-center HD and PD. The USRDS started to track the home hemodialysis population in more detail in the last several ADRs.
Home hemodialysis: incident patient distribution
Table 4.c (Volume 2)

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*Values for cells with ten or fewer patients are suppressed. "Zero values in this cell.

Incident home hemodialysis patients, by geographic location
Figure 4.11 (Volume 2)

Prevalent home hemodialysis patients, by geographic location
Figure 4.14 (Volume 2)
Home hemodialysis summary

- The incident home hemodialysis population is relatively small.
- The prevalent population reached 2,500 in 2006.
- The type of home hemodialysis, however, is not definable from the Medicare data at this time: Daily vs three times per week, etc.
- The 2007 data showed there were 3,000 prevalent patients under treatment.
- New data collection tools are under construction at CMS under the Crown Web system to address the increasing home hemodialysis population.

Care of the PD and HD populations

- Anemia management
- Diabetes and lipid monitoring

Mean monthly hemoglobin & mean EPO dose per week

Figure 5.3

Period prevalent dialysis patients with EPO claims; monthly hemoglobin includes all claims with a hematocrit value between 10 & 50; weekly EPO dose includes all claims for patients with an average number of administrations per month ≤ 20; EPO doses prior to are adjusted for inpatient days.

Mean monthly hemoglobin

Figure 5.4

Incident dialysis patients with a first EPO claim within the first 30 days of ESRD start date & at least one EPO claim in each of the first six months. Groups by modality, 2004-2005 combined. Hemoglobin group determined by patient’s hematocrit on the Medical Evidence form.

Mean EPO dose per week

Figure 5.5

Incident dialysis patients with a first EPO claim within the first 30 days of ESRD start date & at least one EPO claim in each of the first six months. Groups by modality. Hemoglobin group determined by patient’s hematocrit on the Medical Evidence form. EPO doses adjusted for inpatient days.

Probability of achieving hemoglobin levels ≥ 12 g/dl

Figure 5.13

Dialysis patients incident between July 1, 2004, & June 30, 2005, during the first six months after incidence, & achieving a hemoglobin ≥ 11 g/dl during the second six months of the six-month period. Probabilities estimated using Kaplan-Meier method. Patients with Medicare as primary payer.
Time at hemoglobin levels of >12 g/dl
Figure 5.14

Probability of achieving hemoglobin levels ≥ 12 g/dl, by modality
Figure 5.15

Number of HbA1c tests, by modality, 2005
Figure 5.21

Number of lipid tests, by modality, 2005
Figure 5.25

Number of diabetic eye examinations, by modality, 2005
Figure 5.29

Cardiac evaluations among Incident PD and HD populations
- Echocardiograms
- Electrocardiogram
- Lipid testing
- Percutaneous coronary interventions
- Surgical interventions
- And pacemaker/defibrillators
Patients receiving an echocardiogram
Figure 9.7 (Volume 2)

Patients receiving an ECG
Figure 9.8 (Volume 2)

Patients receiving lipid testing
Figure 9.9 (Volume 2)

Patients receiving revascularization: PCI
Figure 9.10 (Volume 2)

Patients receiving revascularization: surgical
Figure 9.11 (Volume 2)

Patients receiving ICDs/CRT-Ds
Figure 9.12 (Volume 2)
Adjusted five-year survival, by modality & primary diagnosis: 1991-1995

Adjusted five-year survival, by modality & primary diagnosis: 1996-2000

Mortality rates, by modality

First-year mortality rate, with basic vs. composite adjustments
Adjusted admissions & days, by modality
Figure 6.3 (Volume 2)

Adjusted admissions for principal diagnoses, by modality
Figure 6.5 (Volume 2)

Access procedures in prevalent hemodialysis patients, by diabetic status
Figure 6.13 (Volume 2)

Catheter events & complications
Figure 5.27 (Volume 2)

Arteriovenous fistula events & complications
Figure 5.28 (Volume 2)

Arteriovenous graft events & complications
Figure 5.29 (Volume 2)
Comparisons of PD and HD

- The PD population in the US has declined with therapy consolidating into fewer centers.
- Anemia treatment in the PD population is associated with less overshooting than in HD.
- Risk factor monitoring for CVD is similar between PD and HD.
- Catheter complications on HD are a major problem compared to PD.
- Mortality in the first year has continued to improve on PD compared to HD.
- Overall survival in a pure intent-to-treat approach shows PD and HD have similar outcomes.

Implications of dialysis therapies and payment reform: Bundling and full capitation under Medicare Advantage

- Bundling of the dialysis payment, which is to include dialysis services, laboratory and injectibles, may dramatically alter the incentives for service utilization.
- The fixed payment model with some case mix adjuster will place providers under risk for containing costs while maintaining some measure of quality outcomes.
- The global capitation system under Medicare Advantage will challenge health plans on both the revenue side and service utilization.
- These changes in payment policies may have an impact of modality selection since the PD population uses less EPO and IV Vitamin D therapy.